

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/077,854	HOSHIYA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Christopher R. Magee	2653	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the reply filed 1/24/2005.
2. ☒ The allowed claim(s) is/are 1-5,9-12,16-22,26 and 27.
3. ☒ The drawings filed on 20 February 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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## DETAILED ACTION

### *Response to Amendment*

1. The reply filed 02/22/2005 was applied to the following effect: All relevant objections and rejections are withdrawn as being satisfied.

### *Reasons for Allowance*

2. Claims 1-5, 9-12, 16-22, 26 and 27 are allowed (renumbered 1-18, respectively).

The following is an examiner's statement of reasons for allowance:

This application is for a SPIN VALVE HEAD CONTAINING CLOSED FLUX STRUCTURE DOMAIN CONTROL FILMS.

- **Claims 1, 2 and 16** specify a magnetic head, which requires:

*"the single magnetic domain turning ferromagnetic layer is provided with a hard magnetic film made of a mixture of a semiconductor and ferromagnetic material."*

Dill et al. (US 6,023,395) and/or Sakaguchi et al. (US 6,633,466 B1) do not teach or suggest as claimed in the present invention.

Dill '395 discloses the single magnetic domain turning ferromagnetic layer [150] may be formed from a single layer of a high coercivity material such as an alloy of Co and one or more other elements, such as Co-Pt binary alloy, or a Co-Pt-Cr ternary alloy (e.g., Co<sub>75</sub>Pt<sub>12</sub>Cr<sub>13</sub>) or a Co-Pt-Ni ternary alloy or a Co-Cr-Ta ternary alloy. In addition to using a single layer of high coercivity material, such as CoPtCr, as the biasing ferromagnetic layer, there are two other structures that will serve as the biasing ferromagnetic layer. First, the biasing ferromagnetic layer may be a bilayer formed from a first ferromagnetic film of a lower coercivity material, such as 5

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nm of Ni-Fe, and a second ferromagnetic film of a higher coercivity material, such as 10 nm of CoPtCr [col. 12, lines 40-52].

Sakaguci '466 teaches a single magnetic domain turning ferromagnetic layer [9] may formed from a by a layered film having ferromagnetic or antiferromagnetic coupling between a hard magnetic film [6] and a soft magnetic buffer layer [8] via a coupling film [7; col. 6, lines 10-32]. The hard magnetic film [6] being formed of a CoPt alloy or other magnetic material.

Therefore, these features, in combination with other features of claims 1, 2 and 16, are not anticipated by, nor made obvious over, the prior art of record of Dill '395 and/or Sakaguci '466.

### ***Conclusion***


3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 18, 2005

  
Christopher R. Magee  
Patent Examiner  
Art Unit 2653

  
GEORGE J. LETSCHER  
PRIMARY EXAMINER